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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,577	01/24/2002	Naohiro Hirose	KON-1707	5337
20311 7590 01/25/2007 LUCAS & MERCANTI, LLP 475 PARK AVENUE SOUTH 15TH FLOOR NEW YORK, NY 10016			EXAMINER RODEE, CHRISTOPHER D	
			ART UNIT 1756	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/25/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/056,577

Applicant(s)

HIROSE ET AL.

Examiner

Christopher RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 2-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/11/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11 December 2006 has been entered.

Election/Restrictions

Claims 2-5 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected processes, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 28 August 2003. The basis for the restrictions presented in the Office action of 29 January 2003 remains applicable to the claims.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 6-8, and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa *et al.* in US Patent 6,555,281 in view of Rimai *et al.* in US Patent 4,737,433.

Nozawa discloses a toner having a weight-average particle size of 4 to 8 microns (col. 11, l. 9-12) with a SF-1 of 100 to 170 and SF-2 of 100 to 140 (col. 14, l. 4-14). Nozawa discloses in Example 70 a toner having a styrene-butyl acrylate binder resin and a colorant with

SF-1 of 162 and SF-2 of 138. The ratio of SF-1/SF-2 is 1.17. This example has 8.2 number % of particles with a size of 4 microns or less and an average size of 7.1 microns (Table 18 relying on Table 13). Nozawa also teaches that the styrene-butyl acrylate toner binder resin has 170 weight parts of styrene and 30 weight parts butyl acrylate (Example 1; col. 31). Nozawa also teaches that the comonomer polymerized with styrene (an aromatic vinyl monomer) is acrylic acid, methacrylic acid, ethylcrylic acid, crotonic acid, fumaric acid, maleic acid, or citraconic acid, among others (col. 12, l. 59 – col. 13, l. 8). The difunctional monomers would crosslink the copolymer. Nozawa does not appear to disclose 5.0 % by number of particles having a size of from not less than 0.60 μm to less than 1.00 μm .

Rimai teaches that the toner should have an average radius (i.e., $\frac{1}{2}$ particle diameter) of less than 5 μm with 99 % of the particles having a radius of 0.5 to 2 times the average radius (Abstract). Controlling the number of particles in this manner permits the artisan to obtain maximum image clarity (col. 2, l. 7-11). As noted in the reference, the resolution of the image is limited by the toner particle size (col. 1, l. 61-67). As particle size decreases, efficiency of transfer decreases and toner remains on the photoreceptor. This would appear to cause fog on subsequent images. For the toner disclosed in Nozawa having an average particle diameter of about 7 μm , the radius would be 3.5 μm and 99 % of the particles would have a radius between 1.75 μm and 7 μm (diameter of 3 to 14 μm). Following these teachings the artisan would produce a toner with the claimed number of particles with a size of 0.60 to 1.00 microns.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the toner of Nozawa with 99 % of the particles having a radius of 0.5 to 2 times the average radius because Rimai teaches that producing a toner with such a particle size distribution gives good image resolution and reduces the amount of toner on the photoreceptor. This would be of advantage in Nozawa, which is specifically concerned with

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toner remaining on the surface of the image-bearing member (see Nozawa col. 2, l. 27-31; col. 6, l. 54-65). This residual toner remaining on the image bearing member causes fogging.

It would also have been obvious to produce a toner from styrene and an acid monomer disclose by the reference where the acid monomer is the comonomer of the polymer with styrene and is used in an amount of 15 percent by weight of the copolymer monomers because Nozawa discloses a specific styrene copolymer where the comonomer is present in an amount of 15 percent by weight with styrene and the reference also discloses acrylic acid, methacrylic acid, ethylcrylic acid, crotonic acid, fumaric acid, maleic acid, or citraconic acid as effective comonomers. The artisan would have found it obvious to substitute these different comonomers for the acrylate in Nozawa because the reference teaches them as equivalents.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa *et al.* in US Patent 6,555,281 281 in view of 281 in view of Rimai *et al.* in US Patent 4,737,433 and further in view of Yachi *et al.* in US Patent 5,773,185.

In addition to the discussion above for Nozawa and Rimai, this document also discloses introducing a wax into the toner to aid in offset characteristics (col. 12, l. 14-32). Nozawa does not disclose the specific compound of claim 9, but Yachi teaches the use of ester waxes as effective offset preventing agents (see Formula (1) in col. 9). Also as noted above, Yachi teaches that the addition of a dispersant in a suspension polymerization process, such as calcium phosphate, would be expected to give a suspension resulting in toner with a sharp particle size distribution (see Yachi col. 14, l. 42-49; col. 15, l. 17-50). Yachi specifically teaches as effective a process where the inorganic dispersant is formed in the reaction medium (col. 15, l. 37-42). This process is used by Hashimoto in Example 17.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an ester wax of the Formula (1) in the invention of Nozawa because Nozawa teaches that waxes are effective offset preventing agents and Yachi discloses a specific wax that is shown to be effective as an offset preventing agent for use in a similar toner production process.

This new ground of rejection fully response to applicants' recent traversal.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on Monday to Thursday from 5:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

cdr
16 January 2007


CHRISTOPHER RODEE
PRIMARY EXAMINER